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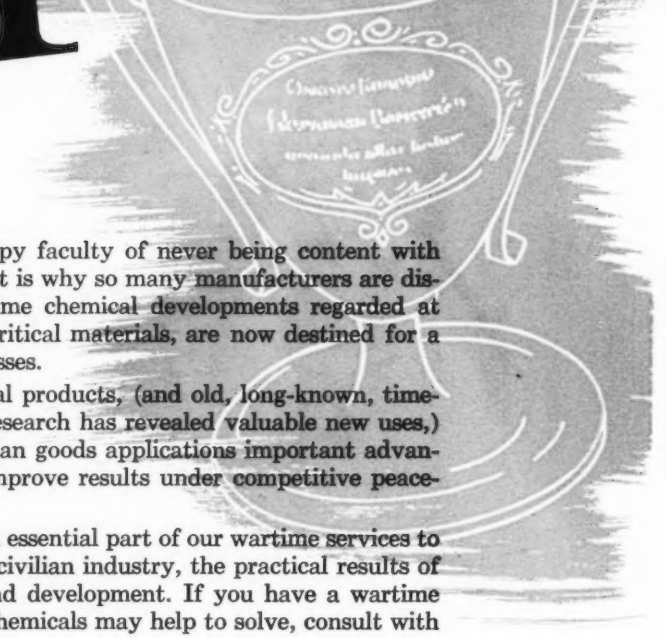

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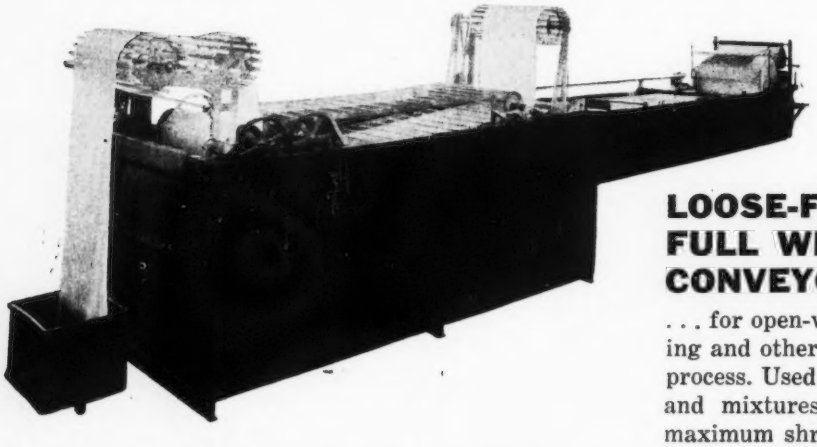

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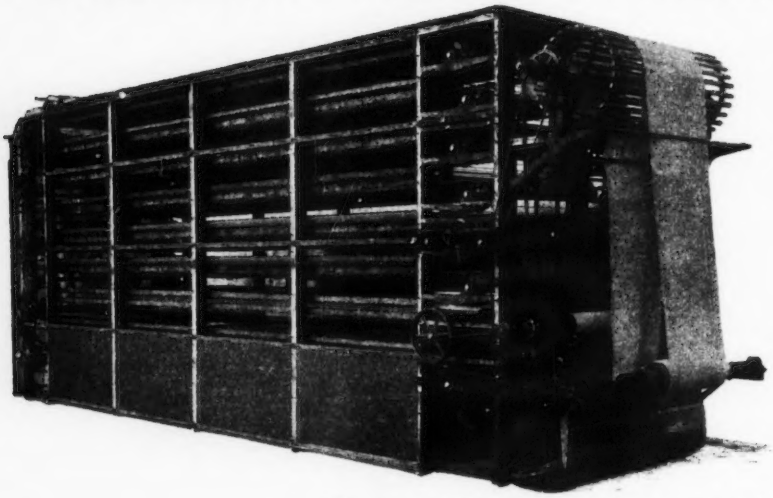

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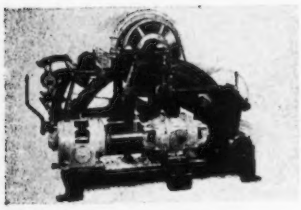

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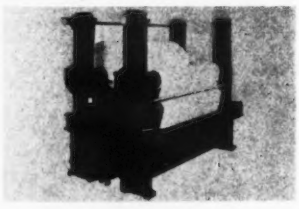

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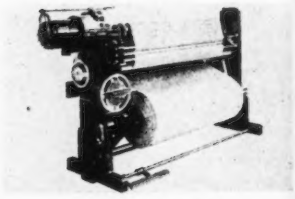

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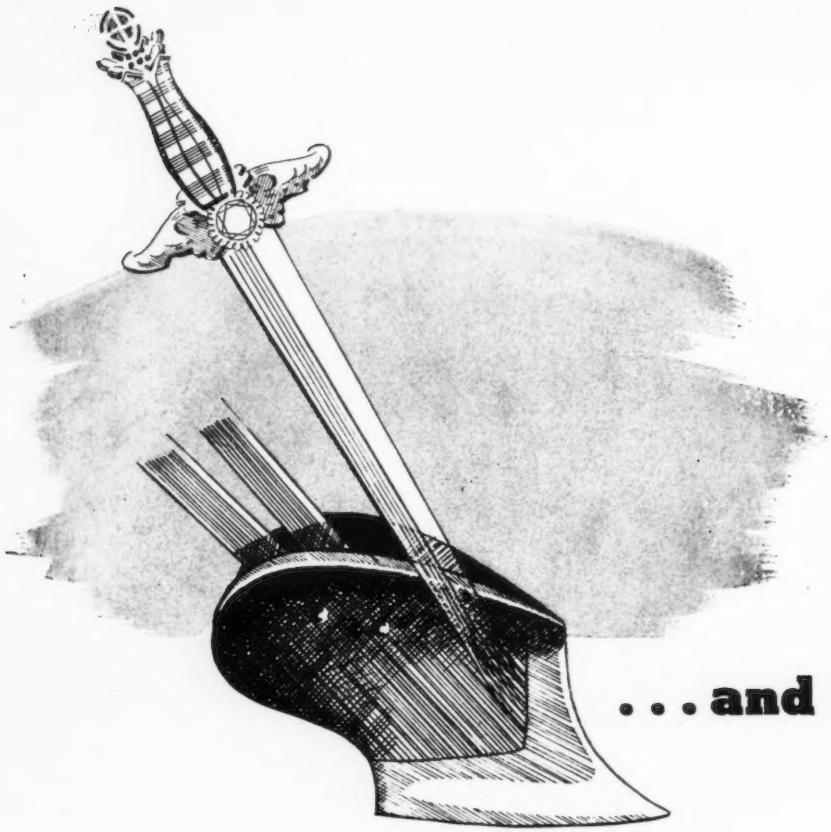

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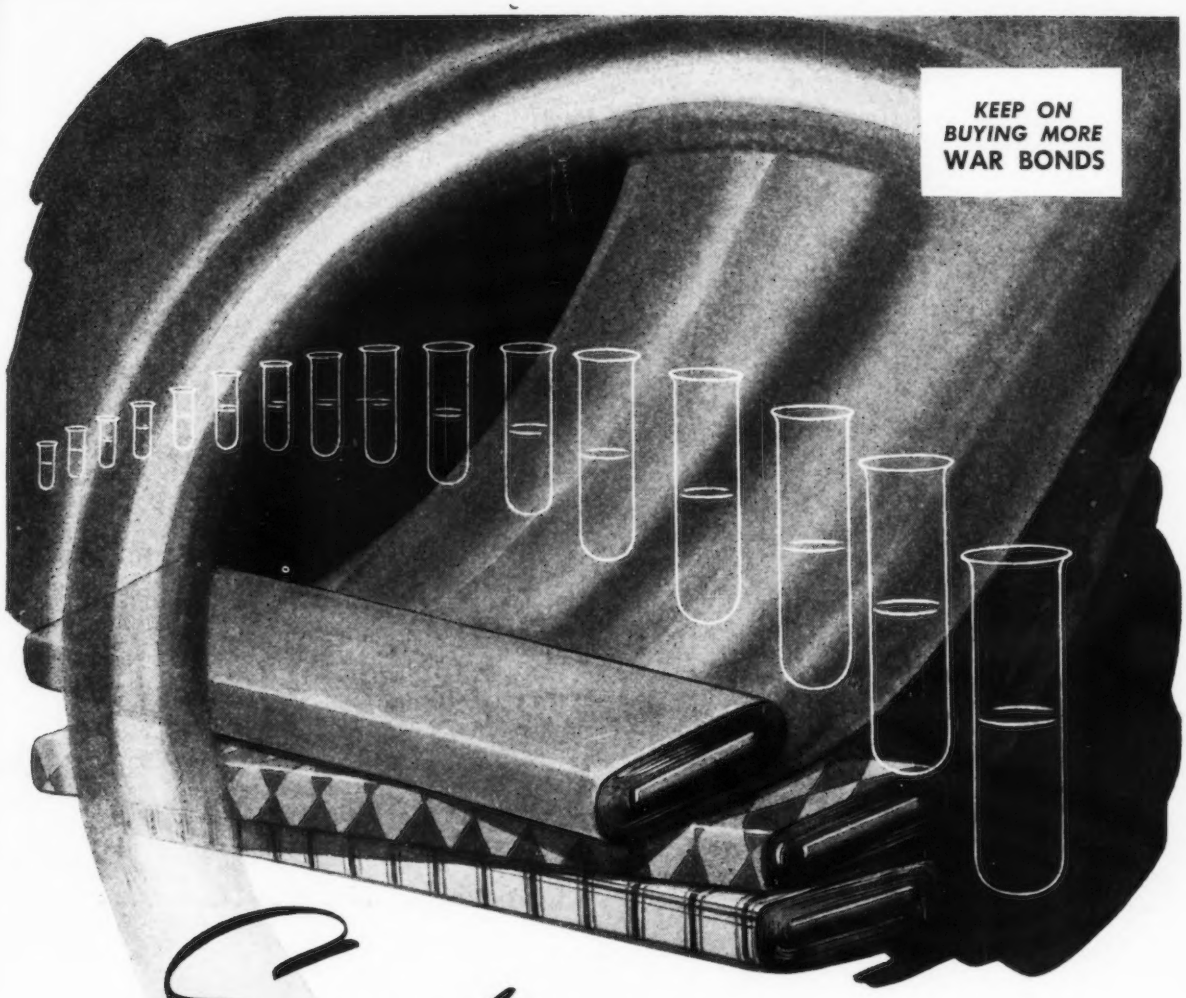

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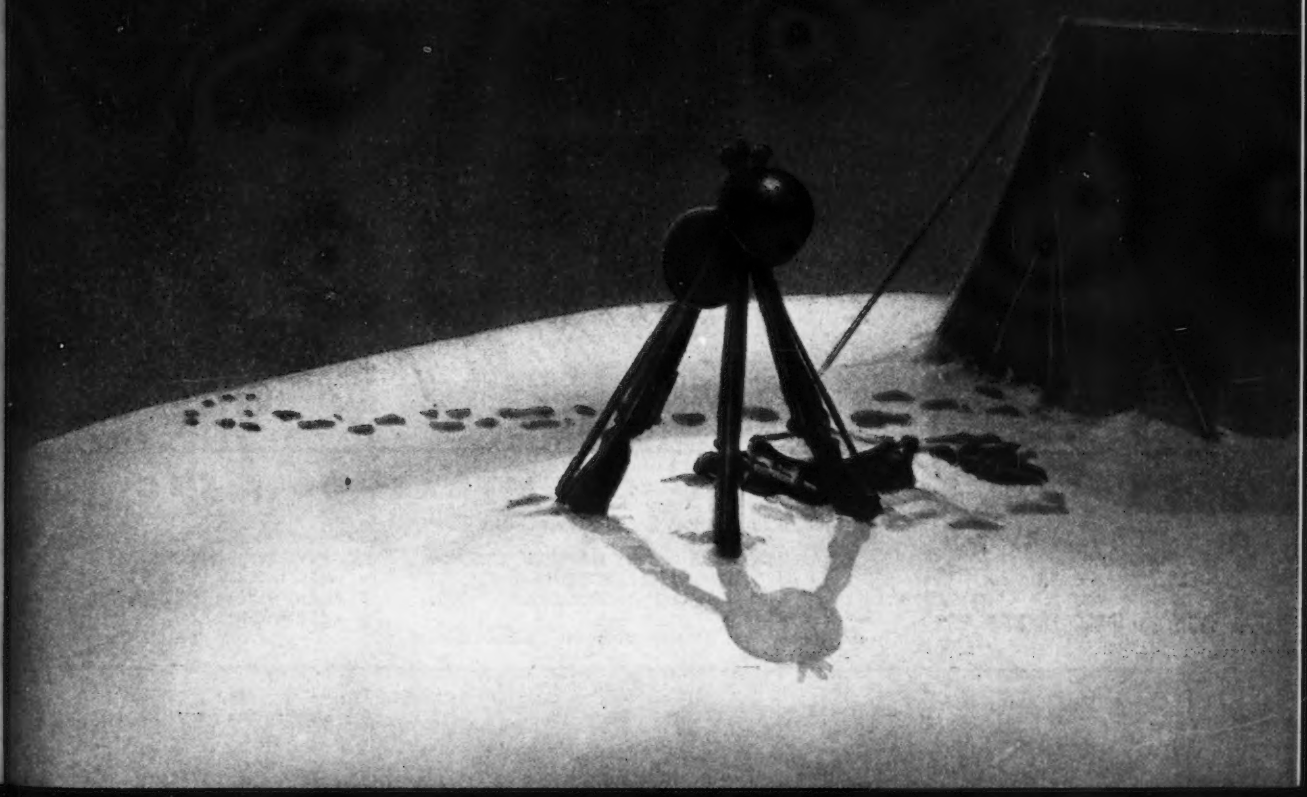

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DECEMBER 20, 1943

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A TIME TO PAUSE - - -

THE HOURS remaining in *'forty-three* are ebbing fast.

Long since, the Textile industry has been absorbed in plans for next year.

But before they're realized . . . let's pause for a moment and review the year just passed.

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AMERICAN
DYESTUFF REPORTER

VOLUME 32 DECEMBER 20, 1943 NUMBER 26

LEVELLING IN WOOL DYEING

T. C. HUTCHINS

THE problem of levelling is common to all types of dyeing processes but wool dyeing in particular may be said to exhibit accentuations of the phenomena of unevenness which are out of the ordinary as compared with other types of fiber. The trouble resides largely in the material, which displays wide differences of condition at every stage of handling on the way to the dye-house. *Raw wool,* as is well known, shows all the variations which might be expected in a material produced in conditions and circumstances which are bound by their very nature to differ within limits, more or less perpetually. Breed, climate, feeding, disease, mixing, etc., all play their part in the production of the raw stock which may find its way into the dyer's hands for treatment. *Scoured wool,* both prior to and after oiling may show differences in alkali and fatty content which are bound to affect the dyeing properties. The conditions of scouring vary so widely from one dyehouse to another that almost all that can be said with certainty is that hardly any two lots of wool will reach the dyer's hands in approximately like condition. *Treated wool*: by this phrase is meant in the present connection such stock as has been carbonized, chlorinated or otherwise treated for improvement in handle or other properties.

In the following notes it is proposed to deal briefly with the subject in two main aspects (a) preparatory processes, (b) the dyeing process. Under (a) three points will be taken up, viz.: (1) *chlorination,* (2) *carbonizing,* (3) *washing;* under (b) two further points will be noted (1) *levelling agents,* (2) *touching-up.* It would be possible to trace the influence of many other factors on the level dyeing of wool but not within the limits of this present article.

CHLORINATION

This treatment as first used seems to have had two objects: (1) increased affinity of the wool for dyes; (2) production of non-felting properties or in other words a reduction of the shrinking propensities of the wool fiber or fabric. In its simplest form it consists of treating the wool first of all in dilute hydrochloric acid, then after removal of surplus acid, steeping in bleaching powder solution; after rinsing this is followed by a further treatment in dilute sulfuric acid with a final thorough rinse, all treatments being carried out at room temperature. Any yellowing which would affect light shades can be removed in the ordinary way by stoving. After such treatment the increased affinity for dyestuffs is very noticeable as compared with untreated wool. The reduction in felting or shrinking properties is the result of a surface change in the fibers which produces what has been described as a gelatinous outer coating which causes the fibers to slip over one another more readily and so reduce their binding or felting tendencies. In the latter respect a great deal of research has been carried on in recent years and many patents have been taken out. For the present, however, we are concerned mainly with the effect of chlorination on dyeing.

In the first place the probability of uneven chlorination must always be taken into account where difficulty in levelling is experienced, while again the greatly increased affinity for dyes imparted by chlorination is quoted by some authorities as being the main factor in the production of unlevel dyeings. In both respects, however, it is obvious that to obtain satisfactory results from both viewpoints some method of control of the relevant factors in each case must be instituted, i.e., in the case of chlorination such factors as hydrogen ion concentration, time of immersion, temperature and liquor ratios; so far as increased affinity for dyes is concerned a slowing-up procedure must be adopted.

Trotman and Bell (*Dyer,* Mar. 1, 1935, p. 221) have pointed out that the two main causes of unevenness in chlorinated wool dyed with acid dyes are unlevel chlorination and the greatly increased affinity for dyes imparted by chlorination, particularly at low temperatures. Further investigation made it clear that the latter factor was by far the more important. Previous work by Trotman (J. Soc. Chem. Ind., 1933, 52, 159T) had suggested that raising the temperature of chlorination would increase levelness and by reduction of the proportion of chlorine required, decrease the risk of damage to the material. It was not possible, however, by this means to ensure

chlorination of all the fibers. The same author suggested the use of wetting-out agents to surmount the latter difficulty but without tangible improvement in the quality of chlorination so far as levelness was concerned or the penetration of resistant fibers. Trotman and Bell have showed by experiment that at elevated temperatures, chlorinated wool dyed at from 140 deg. F. to 210 deg. F. in 60 mins. and dyeing continued for 60 mins. more, was still uneven due to the strong affinity of chlorinated wool for the dye (Erio Floxine 2G, C.I. 31) in the initial stages. Further experiments showed that the best method was to add the dye in three portions to the bath in which Glauber's salt and acid had already been dissolved cold. The first portion of dye was added cold and when this was nearly exhausted the second and third portions were added gradually while the temperature is raised slowly to boiling point and thereafter dyeing continued for 30 mins. Very level results in various cases were obtained thus and a comparison with material dyed in the ordinary way starting at 140 deg. F. and raising to the boil in 30 mins., dyeing being completed at the boil, was very favorable to the new method.

By the use of such methods it is plain that the rate of dyeing can be slowed down in the dangerous initial stages and the actual absorption of the dyestuff by the fiber so controlled that a more even and much less spasmodic progress of the dye from the solution to the fiber is instituted. This aim may be further assisted by judicious selection of suitable dyes, i.e., those which are known to exhaust less rapidly than others. Information on this point is freely supplied by the various manufacturers and classification in most cases has reached such a pitch that if the conditions of dyeing are clearly specified, suitable recommendations for the production of any desired shade are speedily forthcoming.

CARBONIZATION

The name is descriptive of several processes for the extraction of vegetable matter from woolen material. This may mean the extraction of 'burrs,' i.e., pieces of woody matter, etc., which have become entangled with the wool and have not been thoroughly removed during carding and combing, or it may mean the extraction of cotton threads from waste containing a high percentage of wool. In the early days of wool processing *'burling'* or the removal of 'burrs' by hand was the only recognized method of dealing with the problem. Carbonization as it is known to-day is either *Wet* or *Dry*. *Wet carbonization* usually deals with 'burrs' and consists in the application of dilute sulfuric acid or aqueous solutions of metallic salts to the pieces or other form of material. The theory in the case of the acid impregnation is that in drying and subsequent baking the acid is sufficiently concentrated to disintegrate the cellulosic material so that it can afterwards be easily removed by mechanical means, e.g., dry milling, etc. It is from the charring action of the concentrated acid on the fiber that the term carbonization is derived. The action of the metallic salts is due to the fact that they are easily hydrolyzed in aqueous solution as well as being subject to thermal dissociation at higher temperatures. The salt most commonly used is ammonium chloride while magnesium chloride is used in a similar manner. In both cases hydrochloric acid is formed in the cloth, the action on vegetable matter being similar to that already described. *Dry carbonization* is used largely for the extraction of cotton material from mixed waste with a high wool content and consists simply in the subjection of the material to the action of hydrochloric acid gas at 150 deg. F. to 200 deg. F. in suitable chambers, the gas being generated by dropping hydrochloric acid into retorts heated to 1000 deg. F., the gas being conducted from thence into the carbonizing chambers.

It is obvious that by any of these processes there is definite risk of uneven distribution of acid throughout the material when it reaches the dyer, hence the source of another form of difficulty in the production of level dyeings. To take the matter a stage further back it may be easily imagined that the state of the material prior to carbonizing may lead to the problem of uneven distribution of the acid during the carbonizing process. Such factors for instance as residues of fatty matter, soap, alkalies, uneven moisture content and finally level extraction of acid after treatment all have their due effect on the condition of the pieces reaching the dyehouse.

In the sulfuric acid process for instance, the method usually adopted is that of saturating or impregnating the goods with 5⅛ per cent sulfuric 168 deg. Tw. first in the rope and then preferably in the open-width using a squeeze for levelling purposes. The first stage in drying is slow, the temperature being gradually raised until at 175 deg. F. to 212 deg. F., or higher, the process of disintegration of the vegetable matter is completed. The carbonized matter is removed by mechanical treatment and the goods neutralized with ammonia or soda ash, unless as is often the case, dyeing is to follow immediately.

The treatment with aluminum chloride or magnesium chloride is briefly as follows. The goods are impregnated in the open-width on a padder with a solution containing up to 10 per cent of aluminum chloride slightly acidified with calculated quantities of hydrochloric acid. Thorough and even extraction follows, after which the goods are dried up to 200 deg. F. and then baked for a further period up to 260 deg. F. The degraded vegetable matter and metallic residues are removed by mechanical means (dry milling) and if any doubt remains about residual aluminum or magnesium compounds a final sour may be given with hydrochloric acid, the process being completed by neutralizing with ammonia and thorough rinsing.

It has been pointed out by workers in this field that sulfuric acid carbonization decreases the affinity of wool for acid dyes but increases the affinity for basic dyes.

(Continued on Page 583)

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DECEMBER 20, 1943

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The Textile Industry in LATIN AMERICA*

A. M. ROMERO
Export Manager, Standard Mill Supply Co.

IT is indeed a pleasure to be here tonight, and I appreciate the invitation, not only because I have been connected with the textile business most of my life, but because I am glad to meet here some of my old friends. I want to thank them for coming.

I am supposed to tell you about South America and also about the textile industry there. This is indeed a large order, and therefore I can only touch on some of my experiences in Latin America and on some of the aspects of the textile industry there.

I am sure you all know what Latin America is so there is no need to give you a lot of statistics other than to state that Latin America comprises a territory of approximately 8,000,000 square miles, extending from the Rio Grande on our Mexican border to the tip of Patagonia. Latin America has a population of approximately 130,000,000 people in twenty distinct, separate, and independent countries. With the exception of Brazil, where Portuguese is spoken and Haiti, where French is the language of the country, the rest of the Latin American countries speak Spanish.

A. M. Romero was born in Bogota, Colombia, at the turn of the century and received his education there. He first came to the United States in 1919 and began his textile engineering career at Lowell, Mass., in the Saco-Lowell Shops with whom he was associated for a number of years, both here and in Latin America. Since then, he has traveled extensively throughout Latin America and is known to the manufacturers there as a counsellor on mill problems. He is personally acquainted with all the important industrial centers of Central and South America and has been very active in the promotion of Inter-American relations and trade through frequent contributions of textile articles to the Latin textile trade press as well as by his collaboration in textile and export organizations. In addition to his mercantile export activities, Mr. Romero is Vice-President of the Foreign Trade Club, Providence, R. I., and a member of the World Affairs Council of Rhode Island, the Pan-American Institute, the Foreign Policy Association, New England Export Club, Boston, Mass., and Export Managers' Club, New York.

BACKGROUND OF LATIN AMERICA

In spite of the fact that their heritage and traditions are quite different from ours, and their education, ideology, culture, and religion were molded and patterned by a European background, and in spite of the fact that we have lived quite apart from them for many years, we have something very much in common with them.

They have similar ideals to ours about freedom and democracy, which is exemplified by the fact that, with the single exception of Argentina, they have joined the United Nations set-up although not all have declared war with the Axis. It is also interesting to note that when the Latin American countries began their movement for independence and finally achieved it, they all patterned their Constitutions after the Constitution of the United States, and this is more remarkable when you consider that until then they had had little to do with the United States in the way of trade or commerce.

It is also very interesting to note that the first movement for a union or cooperation between the American republics originated in Latin America. Bolivar, who was the liberator of five nations, conceived the idea of such a union and called a Pan-American Congress, but the times and means of communication were not ready for such a union to survive. Later President Monroe declared the famous doctrine which bears his name and which, although misunderstood both here and in Latin America, was a step towards the unification of these countries.

Finally in the latter part of the last century, the Pan-American Union was formed as the first practical set-up for a union of the various American countries, and fortunately it has operated successfully ever since.

While we differ considerably from Latin America, there are many things similar between the historical past of the twenty Latin American nations and that of our own country. After Columbus there came the *Conquistadores* who set up vice-royalties or empires for Spain and Portugal for the specific purpose of exploiting them and deriving whatever they could in the way of land, riches, and treasures, without putting anything back in the way of material improvement other than actually required for their own gain.

Then there was the transition period which finally culminated in their independence, and then of course their readjustment from slave nations to self-supporting countries. We also went through the same periods of conquest, transition, and adjustment. Latin America, however, had to contend with a more difficult set of conditions, partly due to the very nature of the geography and partly to the climate.

Here, it must be noted, that nations North or South of the tropics—that is those lying in the temperate zones—have shown a high degree of ability to become self-sufficient and a definite urge for progress whereas the

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nations within the tropics have not shown such ability. The reason for this is no doubt due to the fact that the tropic climate is more beneficient, the land is rich and fertile, and consequently living can be accomplished more easily. With no natural obstacles to contend with, they consequently become more lax.

It has taken us longer to discover Latin America than we think, and unfortunately certain incidents have occurred which have stirred up a great deal of agitation and resentment there. For example, the manner in which the Panama Canal rights were purchased and the independence of Panama set up was a cause for much resentment in Latin America.

This, as well as the sending of our Marines, and the treatment of Cuba, did not help build the friendship which we desired. It was not until the end of the last war that we became conscious of the potentialities of Latin America. During the first World War we became overnight the almost sole purveryor for the entire world. Our factories and industries were expanded for an enormous production capacity, and when the Armistice came in November, 1918, the demand suddenly collapsed, and we were faced with a tremendous over-production without adequate export markets.

We then sought the Latin American markets, and although we were somewhat inexperienced, the intervening years taught us tremendous lessons, and I sincerely believe that today we are well-entrenched there and that the feeling on their part is infinitely better than it has been at any other time in our history. The trade agreement program of the present administration is one of the finest steps to date for the promotion of our trade with Latin America, and I certainly do hope that we can retain that program as part of our national policy.

Apart from the commercial angles, the cultural background is being explored by such an agency as the Office of the Coordinator of Inter-American Affairs, under Nelson Rockefeller. He has done a great deal of good work in striving for closer relationship between nations of this hemisphere. Here I might mention other organizations which are doing much for progress and better knowledge and relations with Latin America, such as the World Affairs Council to which we are indebted for the films and equipment for tonight.

Let us now make a quick trip around Latin America to see what those countries are like and how they are progressing.

THE LATIN AMERICAN COUNTRIES

Mexico, our first neighbor, is usually regarded by us here as a land of bullfighters and revolutions. Mexico is one of the most colorful of all countries, and perhaps the wealthiest in natural resources and industrially a very progressive nation. Mexico City is one of the most beautiful cities in the hemisphere with a delightful climate and a city which offers every opportunity for the tourist trade of this country. With its tremendous resources and industrialization, Mexico is growing very rapidly in every direction, and bids fair to become one of the world powers.

Colombia is a remarkable country in many respects as it occupies a unique position in that it is the only South American country with coasts on both oceans. It is, we might say, at the crossroads. Colombia has a very sound, truly democratic, Government. While it keeps almost intact its Spanish traditions, culture, and purity of language, still it has become one of the most progressive countries in Latin America. Colombia enjoys a moderately high cost of living which makes it a very healthy economical country.

Peru is likewise a very progressive country, and I dare say it will be one of the nations which will develop very far because of its natural resources and industrialization. Lima, its capital, is a beautiful city with a delightful climate and quite well industrialized.

Chile is that country at the end of the West Coast extending for approximately 3,000 miles from Peru to Patagonia and being no wider than 100 miles at any point. It is a remarkable nation with great ability for progress and with a delightful climate. Its three main products, nitrates, copper, and iodine, are now responsible for the tremendous boom going on there as these are all critical materials for the present war.

Argentina unquestionably has come up the farthest in modernization. Farming is the great resource of this rather unusual country which includes cattle, wool, wheat, linseed, and fruit. The industrial life of Argentina is almost confined to its capital, Buenos Aires, which is a sort of small nation in itself. Buenos Aires is the second largest city in the hemisphere, being exceeded by New York only. It is one of the finest cities in the world, very modern, up-to-date, and very busy. The Argentines are a proud people because they realize they are the most progressive in Latin America and consider themselves the logical leaders of Latin America.

Brazil is a tremendous country with an area larger than that of the United States by approximately 350,000 square miles. Its entire coast line is longer than our two coast lines put together. While Brazil has not shown the same progress as Argentina, the prospects there are tremendous and could easily be just as powerful because of the natural resources and industrialization. Rio de Janeiro, its capital, is one of the most beautiful cities in the world and boasts of what is considered the most beautiful harbor in the world where nature certainly outdid herself in every respect.

Due to the limited time available, I cannot say very much about the smaller countries, each of which has its own peculiar characteristics, its own problems, its important products, and its potential market for us.

Suffice it to say that every country of Latin America offers a great deal for us, which is indicated by the fact that today we are importing approximately fifty different

commodities from all over Latin America, all of which are essential in our war effort.

THE TEXTILE INDUSTRY

Now with respect to the textile industry, this is one of the oldest in the world, and in South America it is both the oldest and the largest. Textile minufacturing, whether by hand or by machine, is found in every Latin American country to a certain degree, but the largest textile industrialization is to be found in Brazil, Mexico, Argentina, Colombia, and Peru.

In Brazil there are approximately 3,000,000 cotton spindles for its population of 45,000,000 people which gives them a ratio of 15 persons per spindle as compared with four to five persons per spindle in the United States. Measured by that ratio, you might infer that Brazil has a very insufficient textile capacity. That is not so. In fact, it has a surplus of textile goods to export to Argentina, Chile, and other countries. The reason for this is that the local markets, because of the lower standards of living, cannot absorb their production, and consequently outside markets must be found.

In typical Latin-American fashion, the textile industry is full of contrasts, and you find many very antiquated old mills while you also will find some very modern mills. At this point I might mention that in some of the mills in Brazil, they spin as high as No. 140 yarns on ring frames with Brazil cotton. This is accomplished by a very ingenious blending room where the cotton which is not very well stapled is allowed to blend until good grades are obtained. Brazil needs a great amount of new machinery, as well as good management and good practical textile men. There are some fairly new mills with good management.

The thought has arisen to the effect that the growth of the textile industry in Latin America is detrimental to our own textile business in this country. In my opinion this is short-sighted. While it is true that we may eventually lose our market in Latin America for our finished textile products, our country as a whole will profit very greatly because of the markets which will open for machinery, equipment, and many other items which the new industries will require, to say nothing of the other markets that will be opened by the greater industrial employment thus created there.

INDUSTRIALIZATION

By industrializing Latin America, we will help make those countries more self-sufficient. We will also diversify their industries and products which is very desirable for, as you know, most of the Latin American countries have been known by their own particular product such as coffee, oil, rubber, etc. In one-product countries, when the market for that particular product is depressed, the entire economy of the country collapses; thus I feel that diversification of products and industries is essential to maintain economic equilibrium in Latin America. Also by industrializing Latin America, we automatically and slowly raise their standards of living. I know of no better way for raising the standard of living than industrialization.

Numerous examples can be cited of the rapid growth of communities due to industrialization. Before I came to this country in 1919 a mill was installed high in the mountains of Colombia in a little village of three or four hundred people who were barely making a living by farming, raising cotton, etc. Now they are a thriving community of mill workers and farmers, much better dressed, housed, and fed, and able to purchase other goods from abroad.

Multiply this incident by the number of industries that have been or can be established in Latin America, and you can see how by industrialization, we will help them and reap tremendous profits ourselves in trade alone.

MEXICO

In Mexico the textile industry has approximately 1,000,000 cotton spindles. When I first visited Mexico I gathered the impression that the prospects there for new equipment and expansion were not very good for many years to come. One reason for this impression no doubt was the fact that the textile industry is controlled mostly by foreign capital. Naturally, foreign capital is interested in the profits and returns so long as they can be taken out of the country, and naturally is not particularly interested in spending their profits locally to expand or improve housing conditions, etc.

Another factor is the legislation in Mexico, which greatly favors labor, plus the fact that the threat of confiscation is ever-present to some degree. I am quite sure, however, that both of these conditions are changing, and possibly before long, there will be a stabilization of industry to a point where there will be an incentive to expand and modernize.

However, the textile industry in Mexico has not progressed as much as could be anticipated. We, for our part, must endeavor to devise ways and means to change certain of the objectionable regulations now prevalent in Mexico as I feel that there is a great future in that country for the textile industry.

THE ARGENTINE

Argentina has approximately 500,000 spindles, all of which are in about six plants in Buenos Aires. These plants are quite modern, mostly equipped with up-to-date machinery, and under good management.

COLOMBIA

Colombia has approximately 250,000 spindles and perhaps the most modern mills in Latin America due to the fact that their textile industry is comparatively new, dating back only about 25 years. Most of the mills have been originally planned and equipped by American manufacturers who have endeavored to give them the very latest devices and equipment. Mills in Colombia have expanded

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DURING 1944

THE AMERICAN DYESTUFF REPORTER WILL APPEAR ON THE FOLLOWING DATES

EVERY OTHER MONDAY

JANUARY . . .	3-17-31
FEBRUARY . .	14-28
MARCH	13-27
APRIL	10-24
MAY	8-22
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OFFICIAL PUBLICATION, PROCEEDINGS AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS

Latin America—

(Continued from Page P576)

and advanced quite rapidly, partly due to the fact no doubt, that the entire industry is in the hands of Colombian investors, and consequently the management is interested in expanding locally.

PERU

In Peru, which has the same number of spindles as Colombia, the mills are quite different, however, in that they are old mills, badly in need of modernization. Chile, on the other hand, with very few mills, has one of the most modern mills in the world installed about eight years ago by United States concerns.

MODERN EQUIPMENT

In passing, we might say that the mills in South America who can afford to purchase modern equipment have the advantage over United States mills in that they can select the best equipment from all parts of the world, and we must be frank to admit that some of the equipment which can be purchased in Europe is perhaps better and more flexible than ours. We must also emphasize the fact that as a general rule the textile industry in Latin America is highly profitable, thus it is not uncommon to see their large mills declare handsome dividends and establish reserves sufficiently large with which to purchase additional equipment from their profits in the course of a very few years.

CONCLUSION

In conclusion, I want to show you now the films which we have of various countries in South America and which will indicate the tremendous opportunities those countries offer to us. We have an excellent chance for a healthy trade with those countries, but we must know how to do it. We must, for example, learn their language, their traditions, their methods, and the things which they like. Again I must emphasize that we must help them raise their standards of living so that we can create larger markets for our diversified manufactured products.

Export business, while complicated and difficult, does not offer any more risks, if as many, as domestic business. A well-conducted foreign business shows much less credit loss than the average domestic business. We must not forget that Latin Americans are just as human and just as honest or dishonest as those found in any other section of the world. We must get acquainted with them, and we must learn the proper ways for conducting our business with them.

DISCUSSION

Question: Can you tell us something of the dyeing and finishing in South American mills?

Answer: The Latin American mills are unlike the mills in this country in that they are usually smaller units, but all-inclusive; that is they include everything from spinning and weaving through to the final packaging. Many mills start even at the ginning of the cotton and consequently a mill with only 100 looms cannot offer very much in the line of dyeing and finishing.

They could not afford the heavy modern expensive machinery we use nor the specialized technical skill. The Latin American superintendent often must be a cotton ginner, carder, spinner, weaver, finisher, employment manager, treasurer and everything else. In my opinion, finishing machinery in America needs a lot of improvement and in some cases does not compare well with some of the excellent equipment I have seen imported from Europe. By this I do not wish to cast any reflection upon our excellent finishing equipment for large production as it must be noted that the European equipment has been particularly adapted for the more flexible and smaller requirements of the Latin American mills.

In centers like Brazil, Mexico, and Argentina, where there are many manufacturing plants, it is possible that a central finishing plant could be established to dye and print for a group of various mills. This, however, would not be a very practical thing in Latin America at present because manufacturers are secretive and jealous of their product so that a cooperative scheme of this sort might not be successful.

Question: Is there any printing there?

Answer: Quite a bit, particularly in Mexico, some in Brazil, and in Argentina, although generally it is still in its infancy.

Question: What is the status of the textile chemical manufacturers?

Answer: The chemical industry by and large, I am sorry to say, has produced a rather bad impression in Latin America.

The average chemical distributing agent or salesman has participated in a price and terms control set up which does not permit the average customer to reach the open market. The Latin American mills feel that they have been treated unfairly because of the prices and practices that have been established and because they have found it most difficult to break up the solid union that has been formed.

It is very difficult to explain the situation that exists in the textile chemical industry, but suffice it to say that it does not seem to have been very well handled. Most of the dealings are conducted outside of the mills in hotel lobbies and such, and there is a report that many of the purchasing agents are being subsidized by chemical companies in a way hardly better than graft.

Question: How about worsted and woolen goods?

Answer: These industries have progressed greatly and as a matter of fact are able to produce perhaps better worsted goods than we can in this country. Many of the worsted products in leading plants in Mexico, Buenos Aires, and Brazil compare very favorably with the British

goods, and are better than those produced in volume in this country.

The reason for this is very obvious. In this country we cannot afford to make high-quality worsteds under our high productive systems because there is not sufficient market for them whereas in Latin America high class worsteds can be produced in the average mill as their entire output is consumed by the people who can afford the very best goods.

Question: What is the commercial relationship with Japan? Do they flood the South American market with their goods?

Answer: Prior to the war, Japanese goods were flooding the South American market, and it reached a point where it became necessary for the Latin American countries to exercise very rigid control over the imports by restricting the importation of the goods to the extent of purchases by Japan.

With respect to Japanese textile goods, we were responsible for the heavy inroads they made in our markets in Latin America. When we had a tremendous oversupply of cotton in this country, we decided to do something about it, and a floor tax was imposed which was paid by all the American manufacturers and which enabled Japan to purchase our surplus cotton at a price lower than our United States mills could buy it. The Japanese transported this cotton to their own country, processed it into finished goods, which were sold in Latin America at prices which were very much lower than ours. In fact, they could offer goods with all freight charges and duty paid at lower figures than we could produce the same goods in this country.

This was truly a difficult situation all around, and their goods flooded the market. To be sure, the Japanese goods did not compare with ours in quality, but being the great imitators they are, their goods looked very much like ours, and knowing that the ordinary customer looks at the price tag only, they took full advantage of that condition.

Question: To what extent is English used or understood?

Answer: In the large cities, hotels, restaurants, and shops, English is used very freely, and you can always find someone who understands it. In the average textile mill you will easily find some one in the management who reads and understands English. This is due to the fact that they have been forced to learn it because many of the textbooks and other data issued by manufacturers are published in English.

You can get along quite well without knowing Spanish, but it is very desirable that Spanish be learned if you intend doing business with Latin America as naturally they are a proud people, and it is a compliment to them to speak in their own language. I think that salesmen and those engaged in trade, or who have to offer their technical skill in Latin America, should know the Spanish language.

STATEMENT ON POLICY

THE Association has been asked on many occasions by textile interests, and others, regarding its attitude toward informative labeling of textile materials, as well as governmental regulations and impending legislation on this subject which have been under discussion for some time. The A.A.T.C.C. comprises the technical personnel of the textile and dyestuff industries and, as such, it is equipped to develop factual information on the quality and durability features of all fabrics. The scientific data covering this very broad subject which has been accumulated by its research committees over a period of twenty-two years constitutes the basis of the quality standards of the textile industry and is freely available to allied industries, consumer organizations and the government agencies for any purposes for which it may be required.

The A.A.T.C.C. takes a neutral stand with respect to informative labeling, whether voluntary or compulsory. It will supply the necessary standards and testing methods and other factual data but does not concern itself with the commercial or political aspects of this subject. Hence, the Association performs a very definite service to the industry, the public, as well as the government, because it is the source of the facts that make accurate labeling possible and protect all parties concerned against unreasonable demands and regulations.

MEETING, SOUTHEASTERN SECTION

THE Southeastern Section held a regular meeting on November 27, 1943 and was called to order by Chairman John P. Harrison at 7 o'clock.

A report was given by the officers, and new officers were elected for the year 1944 as follows:

O. G. Edwards, Avondale Mills, Sylacauga, Ala., Chairman; J. E. Smenner, Eagle & Phenix Mills, Columbus, Ga., Vice Chairman; W. B. Griffin, Kali Manufacturing Co., Atlanta, Ga., Secretary; Laurie E. Whittelsey, Southern Dyestuff Corp., Macon, Ga., Treasurer; R. W. Philip, Cotton Publishing Company, Atlanta, Ga., Councilor.

Sectional Committee

James C. Farrow, Russell Manufacturing Co., Alexander City, Ala. William R. Jones, Dundee Mills, Griffin, Ga. M. T. Barnhill, Avondale Mills, Sylacauga, Ala. R. H. Nuttall, Lanette Bleachery & Dye Works, Lanett, Ala. Marvin Youngblood, Callaway Mills, LaGrange, Ga. James F. Armstrong, Spalding Knitting Mills, Griffin, Ga. R. O. Simmons, Pepperell Manufacturing Co., Lindale, Ga.

A program of the following papers was read: "Ceglin," by J. Andrew Clark of Sylvania Industrial Corp.; and Mr. W. B. Griffin gave the paper submitted by this section in the National contest. Both of the papers created wide interest.

This meeting was the last for the old officers, and all went out with regrets.

Respectfully submitted,

LEE L. BAKER, *Secretary*.

LEFT TO RIGHT: Fessenden S. Blanchard, Col. George F. Spamm, W. Ralph MacIntyre, Col. William R. Buckley, Lt. Col. Frank M. Steadman, Lt. Comdr. Roy G. Buck

MEETING, NEW YORK SECTION

THE second meeting of the New York Section was held on Friday evening, December 3rd 1943, at the Downtown Athletic Club, 19 West Street, New York City. A dinner preceded the meeting.

The meeting was designated as "Army and Navy Night" and was presided over by Commander Walter F. Prien, executive officer, Brooklyn Naval Clothing Depot, and vice-chairman of the technical program committee of the New York Section. He introduced the guests who were seated at the head table as follows: Lieut. Comdr. Fulton Rindge, Capt. Charles Kirk, supply officer in command of the Brooklyn Naval Clothing Depot; Dr. Arnold Lippert, chief, Dye and Finishing Branch, Textile, Clothing and Leather Division, War Production Board; Capt. Roy Sanders, supply officer at the Brooklyn Navy Yard; Fessenden S. Blanchard, president of the Textile Research Institute, Inc.; Col. George F. Spamm, commanding officer of the Jersey City Quartermaster Depot; W. Ralph MacIntyre, president of the National Association of Finishers; Col. William R. Buckley, of the Quartermaster Corps of the First Army Command at Governors' Island; Lt. Col. Frank M. Steadman of the research and development division at the Philadelphia Quartermaster Depot; and Lt. Comdr. Roy G. Buck of the Bureau of Supplies and Accounts in Washington.

The subject for discussion at this meeting was "Research and Development in Fabrics for Victory." Speaking for the Navy was Rear Admiral W. J. Carter, assistant chief of the Bureau of Supplies and Accounts at Washington. Speaking for the Army was Colonel Elsmere J. Walters, executive officer of the Philadelphia Quartermaster Depot. The speakers were exceptionally able and provided an excellent program. The papers will be published shortly.

The next meeting is scheduled for February 4th and will be held at the Downtown Athletic Club.

The total attendance was about 300.

Respectfully submitted,

NORMAN A. JOHNSON, *Secretary*.

MEMBERSHIP

APPLICATION BLANKS

for individual

and corporate

MEMBERSHIP

may be obtained

from the secretary

Dr. H. C. CHAPIN

Lowell Textile Institute, Lowell, Mass.

LEFT TO RIGHT: Capt. Charles D. Kirk, Dr. Arnold Lippert, Capt. Roy Sanders, Emmett Driscoll, vice-chairman of the New York Section.

LEFT TO RIGHT: Col. Elsmere J. Walters, Rear Admiral W. J. Carter, Comdr. Walter F. Prien, Patrick J. Kennedy, chairman of the New York Section.

UNEMPLOYMENT REGISTER

Members of this association, who are without employment, should forward a statement as to their qualifications and experience. This information will subsequently appear on these pages with an identifying key number. Employers are also requested to file with the American Dyestuff Reporter any vacancies which may occur in their business.

NOTICE TO EMPLOYERS

Personal Histories and Employment Records of the following applicants are on file at the office of the American Dyestuff Reporter. Prospective employers may examine them without obligation.

Key: A—Laboratory and research; B—Dyeing or printing; C—Finishing; D—Sales; E—Instruction; F—Executive.

A-2

Education—Graduate, Lowell Textile Institute, B.T.C., 1933.
Experience—Experienced as textile chemist, chemist-spotter, agricultural chemist and U. S. Army inspector on cotton, rayon, woolens and worsteds. Seeks research or control position with future. New England preferred.
Age 34; married; references.

A-3

Education—B.S. in chemistry, Lehigh University.
Experience—Experimental engineer and analytical chemist, 8 mos.; assistant superintendent of silk corporation, assisted in planning and directing production, in charge of laboratory, technical work, personnel, purchasing, etc., 2 years; inspector of ordnance material, to the present. Seeks position as chemical engineer or chemist.
Age 26; single; references.

A-B-C-F-3

Education—High school and full apprenticeship.
Experience—Practical Dyer and finisher. Long experience on specialties for men's wear trouser trade in cottons, cotton and rayon mixtures and cotton and Celanese. Is disposing of interests in progressive finishing plant and seeks position as manager, assistant manager or technical advisor. Thoroughly understands requirements of Quartermaster, especially on herringbone constructions.

C-1

Experience—Experienced as assistant finisher, finisher and superintendent of finishing since 1923. Experience on automobile cloth, boucle overcoatings, high grade men's wear worsted, low grade woolens, medium grade plaid-back overcoatings, fleece finish overcoatings. Bolivias, kerseys, medium-grade men's piece dye suitings, uniform cloth, flannels, ladies' dress goods and coatings, government serge and elastique fabrics, marine wool, flannel shirtings.
Age 37; married, 3 children; references.

C-2

Education—Completed course in textile engineering and chemistry except for final half-year at Clemson College.
Experience—11 years of experience in finishing operations, including 8 years as overseer. Experienced on all types of cotton cloths. Experienced on pure finishes, backfilling, Sanforizing, pre-shrinking, and application of several types of water repellent finishes. Seeks position as overseer of finishing department.
Age 32; married; references.

CALENDAR OF COMING EVENTS

Meeting, Philadelphia Section, Hotel Philadelphian, Philadelphia, Pa., January 14, 1944.

Meeting, Council, New York City, January 21, 1944.

Meeting, Research Committee, New York City, January 22, 1944.

Meeting, Rhode Island Section, January 28, 1944.

Meeting, New York Section, Downtown Athletic Club, 19 West St., New York City, February 4, 1944.

NOTE: Date of April meeting has been changed from the 7th to the 21st.

NOTE: Secretaries of all sections are requested to advise the American Dyestuff Reporter, at the earliest possible moment, of the dates of future meetings. Information concerning programs should follow as soon as it is available.

TRADE NOTES • NEW PRODUCTS

• ARIDYE ACQUIRES PHOENIX

Aridye Corporation, with offices in Fair Lawn, New Jersey, Rock Hill, South Carolina and Providence, Rhode Island, a subsidiary of Interchemical Corporation, has purchased the business of Phoenix Color and Chemical Company, Inc., of Paterson, New Jersey and took over the newly acquired plant on December 11th, 1943, operating it as the Phoenix Color Division of Aridye. It is anticipated that the acquisition of these additional facilities will place Aridye Corporation in a more advantageous position with respect to certain raw materials, required in the production of its pigmented colors for printing and dyeing textiles and also enable it to produce various new pigments and dyestuffs, especially adapted for use in the patented method of application controlled by Aridye.

The business will continue to be conducted at the same plant, and M. Lincoln Schafer, who has been president of Phoenix, will continue in charge of the business and operations of the new division. He plans to install Kenneth L. Dorman as plant manager. Mr. Dorman has been and will continue to be manager of Aridye's pigment development plant in Paterson. With the experience of Aridye Corporation and the facilities of Interchemical Corporation Research Laboratories available to it, the new division will be able to provide greatly improved service to its customers.

• CONTINUOUS PROCESS RANGE

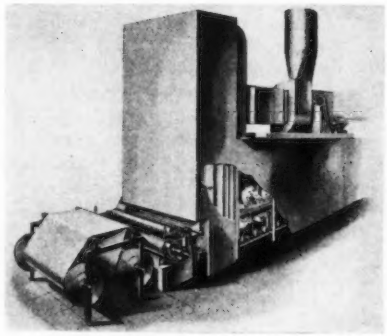
The H. W. Butterworth & Sons Company have designed and build a continuous process range to impregnate rayon tire cord with latex rubber solution.

One of America's largest tire manufacturer's has been operating this machine at a speed better than 25 yards a minute. Another advantage found is that it assures a valuable saving in floor space.

The installation uses the padding technique of immersion in latex, squeezing between rollers and drying on cans, taking care that the solution is so adjusted to the pick-up that the proper amount of latex impregnates the rayon cord.

The range begins with the feeding of the rayon cord into a 2-Roll Micro-Set Padder with constant tension let-off to insure necessary stretch. After the squeeze under four thousand pounds pressure, the cord passes through a heated flue. This pre-drying speeds up the whole process.

Next the cord passes over a series of twenty-eight steamheated drying cans. These cans are arranged vertically with split drive to control tension while being dried. The cord is wound onto a constant tension winder at the end of the range.



Continuous Process Range

All of the rayon cord being impregnated on this continuous process range is used for military purposes, particularly aircraft tires where rayon saves approximately four pounds of rubber per tire, runs cooler and withstands the shock of high-speed landings.

• COURSE ON COLOR

William H. Peacock, a member of the Technical Service staff of Calco Chemical Division, American Cyanamid Company, will conduct a course in the Evening Textile High School, 351 West 18th Street, Manhattan, during the coming winter.

The course will be on the subject of color matching, color terminology, judging color effects, Munsell, Ostwald and other color standards and measurements of color, and will be free to those who desire to receive this instruction.

Mr. Peacock has been identified for many years with application problems in all branches of the color field and he is eminently equipped to discuss the aforementioned subjects. His treatise on the coloring of plastics has been a standard part of the text of Plastic Catalogs for many years, and his knowledge of stains and of the application problems involved in food, drug and cosmetic colors is well known in the trade.

• OFFICERS ELECTED, T.C.C.A.

At the twenty-eigth anniversary meeting of The Textile Color Card Association, held on December 9th at the offices of the organization, 200 Madison Avenue, the following directors were elected for the ensuing year:

Waldo Grose, Botany Worsted Mills
E. Irving Hanson, Hafner Associates, Inc.
Allan C. Jacobson, J. P. Stevens & Co.
Carl E. Kempf, Brewster Hat Co., Inc.
W. R. MacIntyre, Joseph Bancroft & Sons Co.
William B. Olmstead, Jr., American Viscose Co.
Brainerd Pidgeon, Stunzi Sons Silk Co.
Charles Pinnell, Merrimack Mfg. Co.
Armand Schwab, Armand Schwab & Co.
Alfred L. Tilles, Gotham Hosiery Co., Inc.
John F. Warner, Calco Chemical Division, American Cyanamid Co.

At a meeting of the directors held immediately after, the following officers were re-elected:

President: Charles Pinnell (Merrimack Mfg. Co.)
1st Vice Pres.: Roy E. Tilles (Gotham Hosiery Co.)
2nd Vice Pres.: Armand Schwab (Armand Schwab & Co.)
Treasurer: Carl E. Kempf (Brewster Hat Co.)
Secretary and Managing Director: Margaret Hayden Rorke.

• DCAT SECTION ELECTS OFFICERS

The organization meeting of the newly elected Executive Committee of the Drug, Chemical and Allied Trades Section of the New York Board of Trade was held on Thursday, December 9, at the Drug and Chemical Club, 85 John Street, at 12:15 P.M. The primary purpose of this meeting was the election of officers to serve for the next fiscal year, the results of which are as follows:—Chairman, E. T. T. Williams, Chairman of the Executive Committee, Becton, Dickinson and Company; Vice-Chairman, Guy L. Marsters, Vice President. The Norwich Pharmacal Company; Treasurer, Robert B. Magnus, Vice President of Magnus, Mabee & Reynard, Inc. (re-elected). Carl M. Anderson, Assistant to the President, Merck & Co., Inc. was re-elected Counsel. John C. Ostrom was formally re-elected Secretary of the Section and granted a continued leave of absence for the duration to serve as Lieutenant (j.g.) in the U. S. Navy. Miss Helen L. Booth was re-elected Acting Secretary to serve in his stead.

The retiring Chairman, Victor E. Williams, Eastern District Sales Mgr., Monsanto Chemical Company, automatically becomes a member of the Section's Advisory Council, to succeed Philip M. Dinkins, Vice President of American Cyanamid & Chemical Corp., who has finished his five year term.

The final report of the Membership

Committee made by Harold M. Altshul, Chairman, showed that the membership of the Section was at the all time high of 426.

• ARIDYE EXHIBIT

Pigment-printing and pigment-dyeing of fabrics with Aridye colors were one of the innovations featured in the American Chemical Society booth at the Chemical Industries Exposition.

The exhibit told the basic story of the adaptation of pigments for fabric finishing with illustrations of a typical padding range and photo-micrographic pictures showing the firm bond between pigment and the fabric fiber that is said to be one of the outstanding accomplishments of modern pigment-printing and pigment-dyeing.

Also in the exhibit were samples of camouflaged shrimp nets treated with flameproof and mildewproof pigmented compounds, mosquito netting treated with extremely lightfast pigments dispersed in a Ceglin solution to give shrinkage control and a permanent finish. Printed shirtings, pad-dyed rayons and novelty fabrics that had been printed by the silk screen method, or airbrush for a light, airy effect, illustrated the great potentialities of pigmented textile colors.

• TUBIZE NAME CHANGED

The name of the Tubize Chatillon Corporation has been changed to Tubize Rayon Corporation. Offices are at 2 Park Avenue, New York 16, N. Y.

RADIANT HEAT FOR SPECIFIC TEXTILE REQUIREMENTS

MARGARET R. WEISS, B.A., Sc.L.

Director, Textile Research, Carbomatic Corporation

RECENTLY much has been said—and claimed—regarding the use of radiant heat in the textile industry. However, the facts which the textile industry requires are simple and clear: what has radiant heat to offer in terms of efficiency, speed, and economy as an improvement over present drying and heat-treating methods?

No one can give a forthright answer to this question without first discussing the factors to be considered in any application of radiant heat to the specific requirements of textile production — factors which determine the actual performance of any radiant heat equipment to be used therein.

These basic considerations are as follows:

(1) The specific kind of material to be dried or heat-treated: cotton, wool, acetate, spun or flat rayon, etc.
(2) Its heat-absorbing properties.
(3) Its critical temperature.
(4) The amount of moisture to be evaporated at each successive step in the various stages of production.
(5) The speed with which the material is passed over the zone of incandescence.
(6) The distance of the material from the heat-source.
(7) The total area of unobstructed refractory surface and the area of the material to be exposed to that surface.

This is the type of information which is pertinent to the use of radiant heat in the textile industry. And the significance of these factors in any scientific textile application of radiant heat cannot be emphasized too strongly.

It should be stated that 1600° F. is more than adequate for the requirements of many textile operations—indeed even half of that temperature is high enough to raise and maintain the boiling point needed to effect evaporation of moisture! With this clearly in view, the amount of radiant heat imparted to a material to be dried—or, for that matter, cured, singed, carbonized, or Sanforized—should not be determined by the degree of temperature potentially generated by a refractory surface. (This flame temperature, varying between 3500°-3700° F. according to the gas used, depends entirely upon the *amount* of gas-air mixture to be burned. Furthermore, a thermometer-recording of the temperature of the flame stream offers no guarantee that this is actually the temperature which the electromagnetic waves or the refractory surface will radiate.) The desired quantity of heat to be transmitted to the material is predetermined by the abovementioned factors: the nature of the material itself, its ability to absorb heat, its critical temperature, its speed of travel over the radiant surface, its distance from the refractory, and its moisture-content at each progressive phase of operation.

When all these facts are known, then and only then can determination be made of how much scientific radiant heat applications can benefit the textile industry. Thus far, installations of Infra-red radiant heat generators have given promise of great strides in the right direction. Increased output and improved quality of finish have already been confirmed; better working conditions and savings in fuel and labor costs have also resulted. Of especial importance, though not yet sufficiently stressed, is the additional advantage inherent in the type of radiant heat generator *in which each individual unit may be separately controlled according to the amount of heat demanded by each particular step in the total drying or finishing operation.*

Installations in many industries in which temperature-requirements range from 125°-2400° F. have given the utmost satisfaction in performance. The maximum temperatures are obtained in direct proportion to the number of B.t.u.'s consumed and to the area of surface-exposure over which the gas is burned.

But this does not imply that obtaining 2500°-3000° F. on the refractory is always necessary to produce a desired temperature in the material to be dried. For example, no

one would advocate the use of such high temperatures in drying waterproof or flameproof textiles for which the critical temperature is limited and the time of heat-absorption is an essential element in the process involved.

In the final analysis, however, all these facts are available to the textile industry upon consultation with radiant heat experts throughly grounded in textile problems. These men are the only ones equipped to answer such questions as: Can a given material be dried by radiant heat from one end to the other without being burned at the final step when most of the moisture has already been evaporated? Can radiant heat dry the selvage without burning the central portions? Can radiant heat dry any weight of material, whether cotton, wool, rayon, acetate, or a mixture of various kinds? Can radiant heat successfully polymerize (cure) the new synthetic dyes and finishes now being applied? Can radiant heat be used for flameproofing and waterproofing processes? How do gas-burning radiant heat generators compare with electric Infra-red reflector lamps?

In summarizing his comprehensive article in the October 1943 issue of *Industrial Gas,* Carl P. Mann of the Selas Company pointed out that "up to the present time in the textile industry, radiant burners have in most cases been applied to existing equipment. With the attendant increase in efficiency, improvement in quality, and development of new textile processes, new equipment will be designed incorporating radiant heat burners and then further development will surely follow."

. . . And we are in full agreement with this opinion. Successful radiant heat textile installations, however, can result only when placed in the hands of manufacturers whose equipment is designed to meet the specific problems and needs of the textile industry.

Levelling—

(Continued from Page 572)

Aluminum chloride treatment has the opposite effect. In view of this it is of some importance that the dyer should be aware of the method that has been used in any particular case. Other points of note are that the sulfuric acid method is more likely to lead to uneven distribution of acid throughout the pieces than the aluminum chloride method and that in the latter case the use of additional hydrochloric acid requires careful control, otherwise a similar problem is likely to arise.

DRY CARBONIZING

This method is quoted by some authorities, notably Brandy and Burnham (Amer. Dyes. Rep., 1934, 23, 411-414 and 416) as having decided advantages over the wet methods already described. Among these advantages may be named, *better quality goods* which are softer and stronger than goods treated otherwise, *no charring,* therefore cleaner material, *little change in shade of dyed material* treated after dyeing, *effective before or after scouring or dyeing.* In brief, it is described by the authors as a simple, easily controllable process which would eliminate many of the difficulties of the dyer faced with the problem of producing level colors on faultily carbonized material.

A large percentage of the trouble met with in dyeing carbonized stock is generally held to be due to uneven distribution of acid throughout the material and therefore varying affinity for dyestuffs in a corresponding degree. Some indications of methods used and the possibility of control prior to dyeing have already been given. On the other hand, if it is definitely known that unevenness exists or is at any rate suspected, means will have to be adopted in the dyehouse to overcome the fault. In this connection one suggestion is that levelling of the acid content may be carried out by a thorough washing of the suspected material for extended periods in almost boiling water with or without the addition of Glauber's salt. By this means levelling of the acid content is established throughout the piece and in the dyebath, for in many instances it will be found possible to produce level dyeings after such treatment without any further additions of acid.

WASHING

This phase of the subject has already been dealt with to some extent in the foregoing remarks. It is apparent that thorough washing and rinsing at every succeeding stage must play a large part in the production of level conditions throughout the goods. This applies equally to every process, as it is plain that unevenly distributed residues carried over at any stage are bound to affect the behavior of the goods in the fresh set of conditions. For this reason it is of primary importance to establish washing systems, e.g., the Spooner open-width pressure washers for which it is claimed that they will do in 15 minutes, work that formerly required from 3-4 hours in the washing of goods after milling. The system is based on the principle of forcing wash liquors, under pressure, through material passing through the machine in the open width, with the minimum of water and in the minimum of time. As such machines consist of a series of units, it is clear that they can be adapted with equal success and economy to the washing of small or large quantities of material.

LEVELLING AGENTS

The use and effectiveness of many substances which come under this heading is beyond dispute, the main difficulty confronting the dyer of wool being to choose from the hundred and one brands of levelling, dispersing, penetrating, wetting-out, emulsifying, de-greasing, scouring, etc., agents offered to him in all good faith and all having something to recommend them. In view of this difficulty, it will not be possible to do more than offer a few general remarks on the functions of this type of product. In the first place, it must be borne in mind that wool has been described as an amphoteric colloid and as such can react with either acids or bases. Upon this fact is based the

theory of the isoelectric point or field (defined by Speakman as lying between pH 4—pH 8) within which limits wool processing can be carried out with the minimum of risk of damage to the material. Again, this amphoteric nature of wool permits the use of many varied types of levelling agent each of which may be effective in certain circumstances. For instance in some cases (as in post-scouring processes) the alkali content may need levelling-up, while again, as has already been shown, acid distribution will need adjustment. A further field for usefulness is the dispersion of metallic (aluminum or magnesium) and/or fatty (soap) residues; here dispersing agents find application.

It follows from what has been said about the reactivity of wool that some of the efficacy of many of the substances used in this way depends upon their affinity for wool. In this respect therefore it may be conjectured that some of the effect produced in levelling is due to the retarding action of this type of reagent on the actual dyeing process. If the levelling agent has some affinity for wool it is evident that some slowing-up of the rate of dyeing is inevitable and in many cases the levelling agent could perhaps be looked upon as having a buffering effect which in turn introduced a trend of progress towards a more satisfactory and levelling state of equilibrium between the dyebath and the material.

It is no doubt due to some misunderstanding of such fundamental factors that it is now and again imagined that large quantities of any old levelling agent will cure all troubles. Glauber's salt has elsewhere been cited as being used in this way and may actually lead to trouble instead of away from it if used in excess. All such reagents have their limits of usefulness, which are admittedly difficult to define, the definition again being largely a matter of experience aided of course by intelligent anticipation. A brief survey then of the range of possible types of useful reagents in this field may be helpful. Glauber's salt has been mentioned. Pyridine is an organic solvent which by virtue of its weak basicity and its valuable properties of penetration has found some application in the levelling of carbonized wool goods in dyeing. In combination with sulfonated oils, etc., it finds useful application in this field. The sulfonated oil and fatty alcohol products also have their own particular spheres of operation and find extended use as dispersing and levelling agents in various aspects of wool dyeing and processing.

In this matter of levelling the dyer is constantly called upon to solve such problems as the following notes will will indicate. It is well known that with certain types of dyestuffs, e.g., Rhodamines, exhaustion of the dyebath may be promoted by strongly acidifying the dyebath with formic or sulfuric acid. This may lead to unevenness due to rapid dyeing in the early stages. With weaker acids, e.g., acetic, better levelling may be assured but the fastness of the goods to soap is inferior as compared with dyeings with sulfuric acid. If the higher fastness is required a method of dyeing will have to be adopted which will combine the advantages of levelness and fastness. This is accomplished by beginning dyeing from a neutral bath which is slowly acidified with organic acid as dyeing proceeds and finally exhausting with sulfuric acid.

TOUCHING-UP

In conclusion a few remarks on this perennial subject may not be out of place. The final stage of levelling in wool dyeing in particular is known technically as "touching-up," that is to say an approximate shade is obtained from the first weigh-out of dyestuffs, after of course having consulted whatever previous guides may be available, e.g., the dyer's cutting and recipe books. According to the results obtained from this original matching the dyer will have to decide what additions to make in order to get the true shade. The final result after say one initial weigh-out and two "touchings-up" (or "touching-ups") may be a good match. Such shades remain as guides for future work but in all likelihood the next batch for the same shade will require a similar mode of treatment even when allowance for the two previous additions has been made.

Although the subject has only been given a very cursory examination enough has been said to make it clear that the dyer of wool in any form or stage has a task that calls for much resource and a thorough knowledge of his art, to say nothing of at least a working knowledge of the main science (chemistry) which directs his efforts.

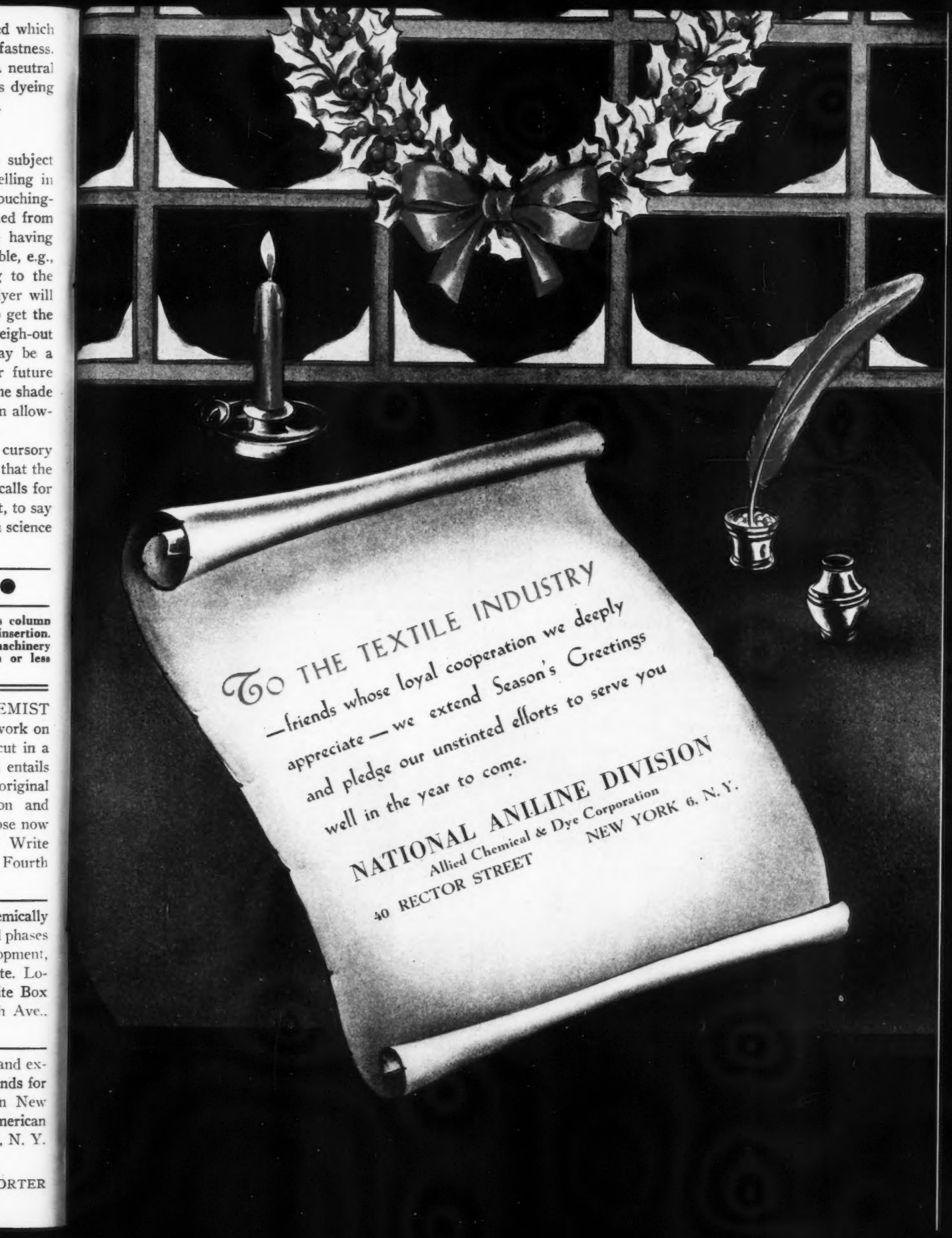
• CLASSIFIED •

The rate for "Position Wanted" advertisements in this column is 2 cents a word—with a minimum of 50 cents per insertion. For all other types of advertisements—i.e., help wanted, machinery or supplies for sale—the rate is $6.25 per column inch or less per insertion.

WANTED: PHYSICIST OR PHYSICO-CHEMIST —Preferably with experience in spectroscopy for work on spectrophotometer. Location in Eastern Connecticut in a textile plant at present doing war work. Position entails supervision of routine measurements as well as original research. Submit complete resume of education and experience together with salary requirements. Those now employed at their maximum skill need not apply. Write Box No. 494, American Dyestuff Reporter, 440 Fourth Ave., New York, 16, N. Y.

POSITION WANTED: Superintendent. Chemically trained and educated. Thoroughly experienced in all phases of textile processing. Experienced in process development, coordination and production. Textile school graduate. Location immaterial. Full details upon request. Write Box No. 495, American Dyestuff Reporter, 440 Fourth Ave., New York 16, N. Y.

WANTED: Chemist with thorough knowledge and experience in analysis and matching of textile compounds for permanent position with chemical manufacturer in New England. Detailed applications to Box No. 496, American Dyestuff Reporter, 440 Fourth Ave., New York 16, N. Y.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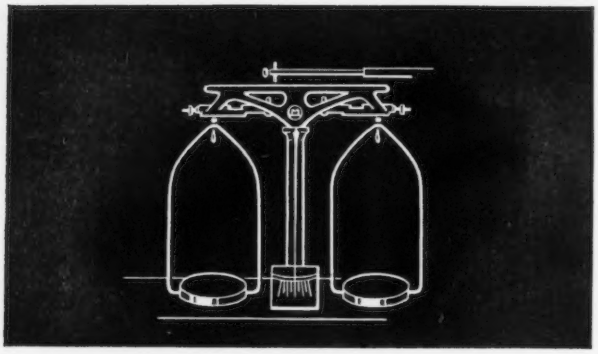

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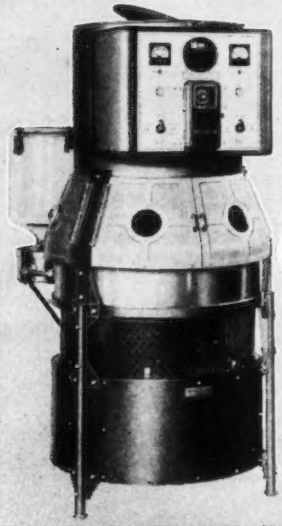

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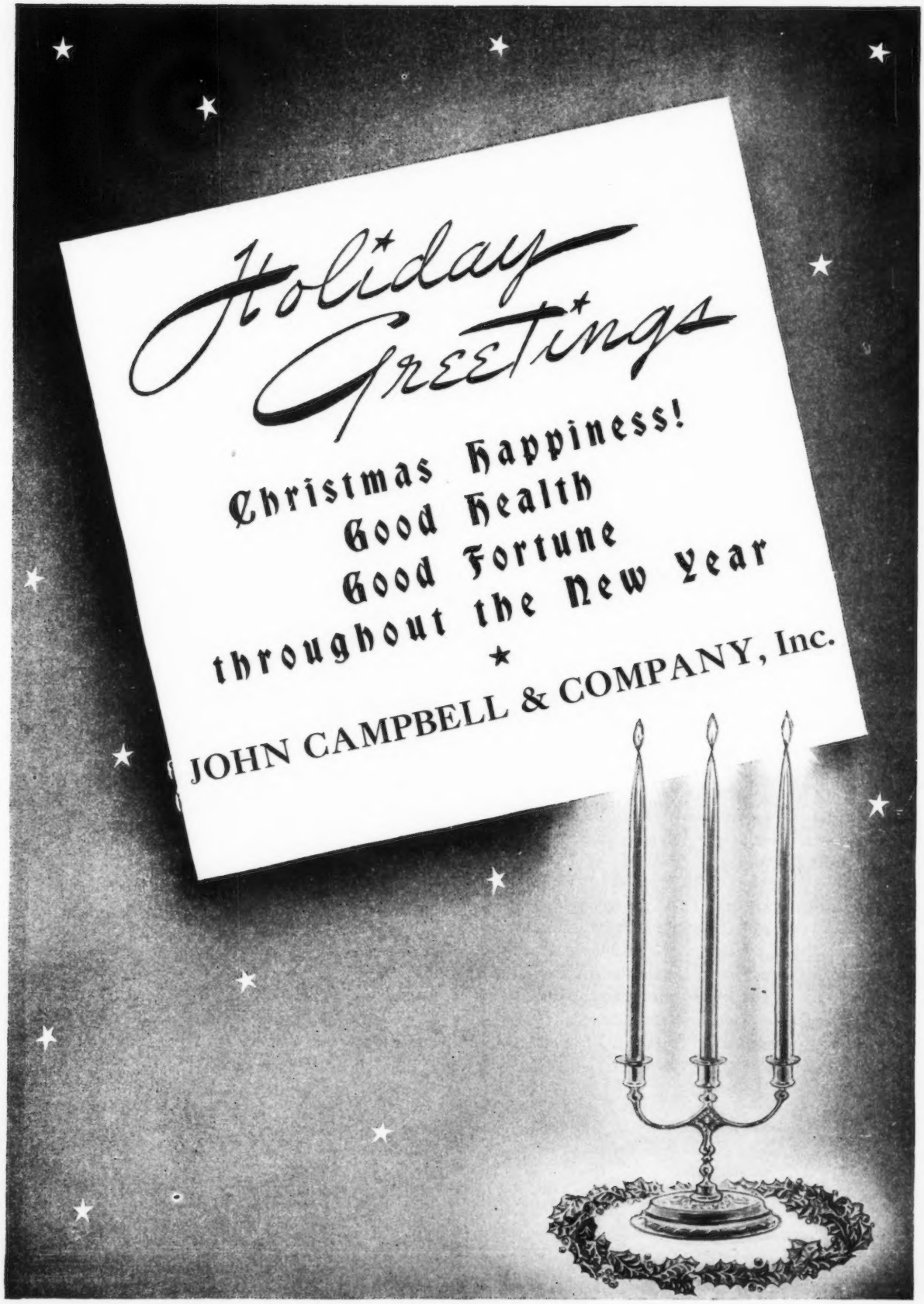
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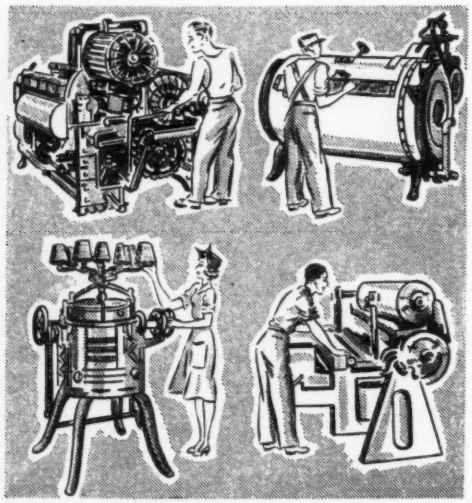

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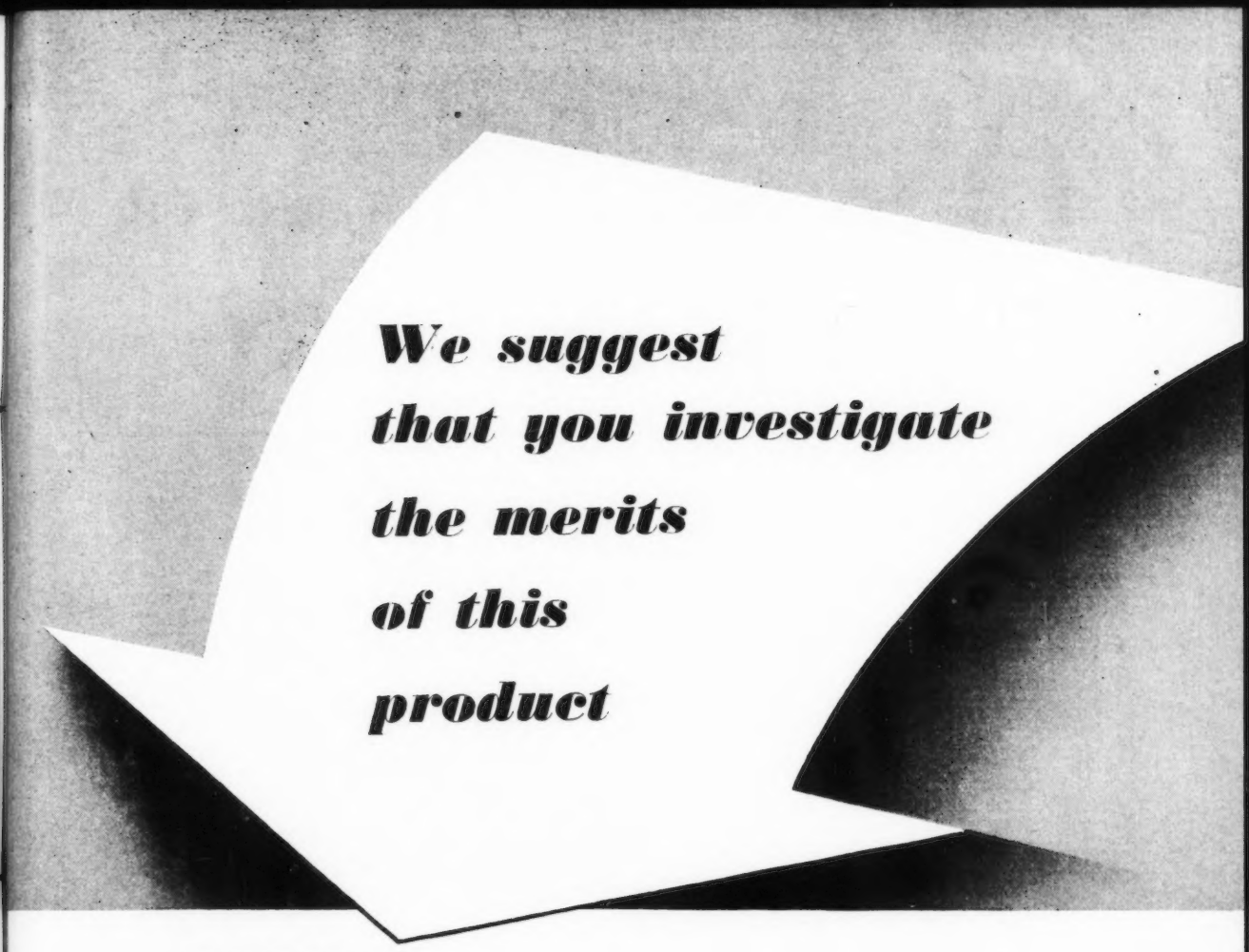

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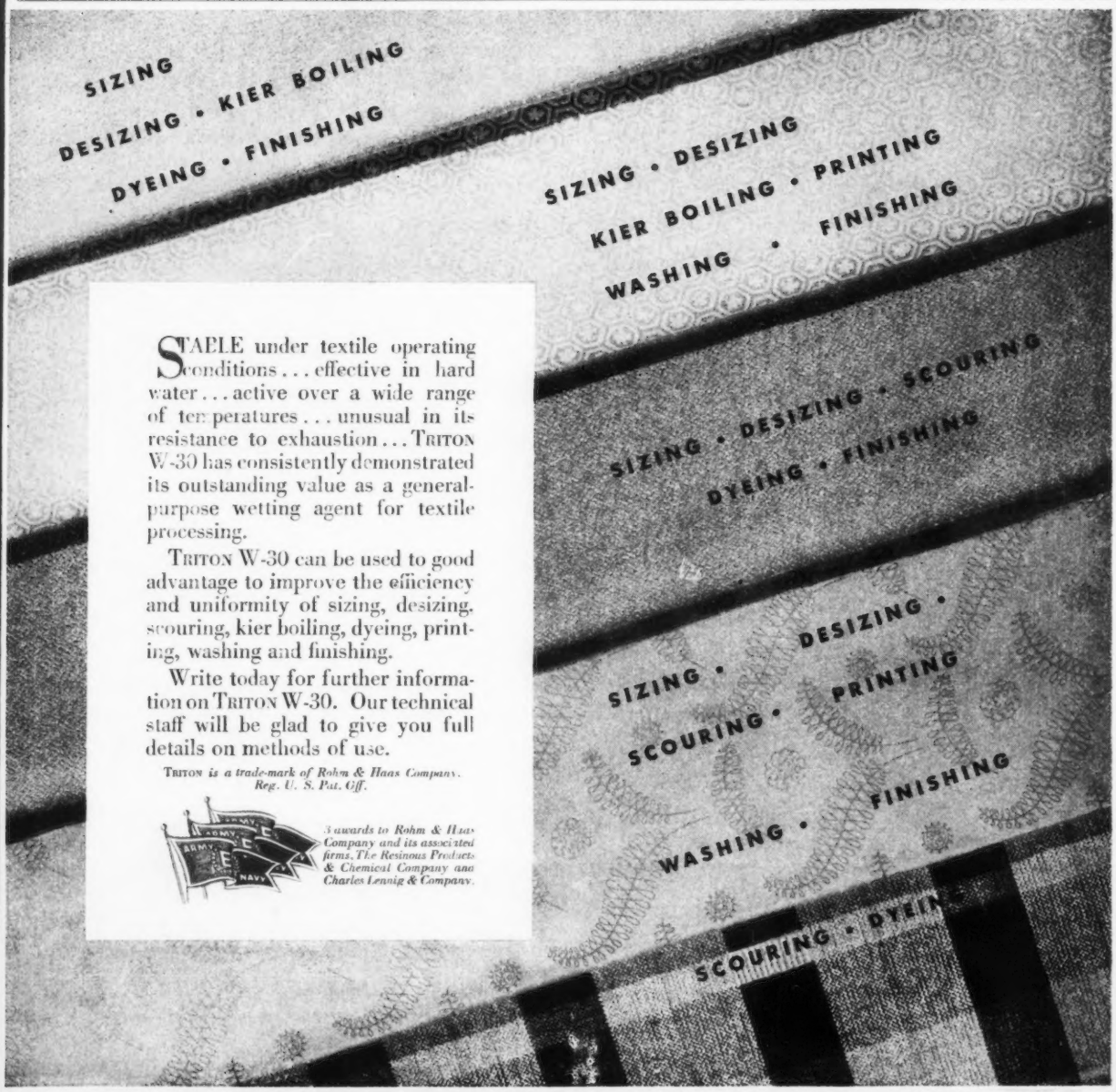

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